aquarium in a 24 hour period. Polywogs of the Pacific Tree Frog, *Hyla regilla* Baird and Girard, which were co-inhabitants of the aquarium, were observed filing algae off of the clam shells.

It seems to the writers that *Anodonta wahlamatensis* Lea can be separated from the apparently closely related species, *Anodonta nuttalliana* Lea (two species that are often confused), by two fairly well defined characteristics. *A. wahlamatensis* Lea possesses an excavated, concave area posteriorly in the wing where it unites with the body of the shell. It also has the sides of the shell more noticeably convex-inflated. Further collecting of large series of individuals may show intergradations of these two characters from *A. wahlamatensis* to *A. nuttalliana*. The Stow Lake population, however, in the writers' opinion, has the two characters which can be used for separation well fixed. A similarity of other shell characters, with the exception of these two, can of course lead to a subspecific separation of the two into *Anodonta nuttalliana nuttalliana* Lea and *Anodonta nuttalliana wahlamatensis* Lea.

The writers wish to express their appreciation to Mr. Bart Rolph, Assistant Superintendent, Office of the Park Commissioners, San Francisco, California, for granting them permission to make the collections upon which this paper is based. Gratitude is expressed to Mr. Allyn Smith of Berkeley, California for reading the manuscript and for his helpful suggestions.

A RECENT PERPLICARIA AND OTHER NEW PANAMIC MARINE SHELLS

By MAXWELL SMITH

Crassispira perla, new species. Plate 2, Figure 2.

Shell large, slender, whorls 8 in addition to the nucleus (broken in holotype); sutures moderately impressed, their course undulating; spiral ribs or riblets strongest anteriorly upon the body whorl, growth sculpture consisting of closely spaced irregular ribs together with striae and blunt nodules (ten of the latter upon body whorl); posterior notch distinct, previous indentations strong between sutures and periphery; aperture narrow, gradually tapering into anterior canal which is slightly reflected at the termination. Alt. 60, max. diam. 14.5 mm.

Type locality: Pearl Islands, Panama (Clark). Holotype in the writer's collection.

Possibly the most slender Crassispira so far discovered. The holotype was not taken alive but in sufficiently good condition to describe. It does not appear to be related closely to any other species.

Vitularia salebrosa extensa, new subspecies. Plate 2, Figure 5

This constant type is easily separated according to its discoverer Mr. Clark. In the subspecies the spire is decidedly shorter and the peripheral angle much greater and more extended than in the typical *salebrosa*. Alt. 41, max. diam. 27.5 mm.

Type locality: Panama. Holotype in the writer's collection.

V. salebrosa is very variable in size. An example from the Calvert collection, probably from the coast of Colombia, is 87 mm. in length.

Trigonostoma elegantula, new species. Plate 2, Figure 3

Shell small, about as wide as high; 3 whorls, with in addition a minute darker colored nucleus of about 1 whorl; surface of shell minutely spirally striate; periphery acutely carinate, surface descending within to the suture; 7 varices upon the final whorl, their terminations forming pointed processes upon the peripheral keel, the interspaces undulating; secondary keel rounded, slope between the two keels concave; umbilicus open, wide, funnel shaped; aperture trigonal; lip widely expanded, a single denticle upon parietal wall. Alt. 10.5, max. diam. 11.5 mm.

Type locality: Pearl Islands, Panama (Clark). Holotype in the writer's collection.

A beautiful little shell. The spire is flecked with chocolate-brown color. The nucleus is flesh color in contrast to the chalky surface of the shell.

Murex vittatus minusculus, new subspecies. Plate 2, Figure 8

Easily separated from *vittatus* Broderip by the much smaller size, more slender shape and pinched appearance on back of last whorl. Alt. 18.5, max. diam. 11.5 mm.

Type locality: Pearl Islands, Panama (Clark). Holotype in the writer's collection.

COLUBRARIA PANAMENSIS, new species. Plate 2, Figure 6

Shell slender, of medium size for the group, whorls 6 with in addition a tilted glassy nucleus of 2½ whorls; spiral riblets dominant upon the last whorl with one to three finer riblets in the interspaces, upon the spire the growth riblets of equal strength forming a network pattern, growth riblets forming a puckered suture; aperture narrow, often less than half length of shell; anal notch variable, anterior canal widely deflected, varices of moderate width. Alt. 29, max. diam. 9 mm.

Type locality: Panama Bay (Clark). Holotype in the writer's collection.

Allied to but usually a much narrowed shell than *C. lanceolata* Menke the Atlantic species. The spire is higher in the Pacific shell and the sculpture generally coarser. A specimen of *C. lanceolata* from the Caribbean in the vicinity of the Canal Zone shows rather widely spaced axial ribs.

COLUBRARIA PERLA, new species. Plate 2, Figure 2

Shell very slender, small, whorls 5, with in addition a dark brownish glassy and slightly tilted nucleus of 2½ whorls; vertical and horizontal riblets of almost equal strength throughout, suture puckered, aperture narrow, inner wall of aperture much more bent than in *C. panamensis,* anterior canal short; surface more or less spotted with chocolate-brown color particularly upon the varices. Alt. 21.75, max. diam. 17 mm.

Type locality: Pearl Islands, Republic of Panama (Clark). Holotype in the writer's collection.

PERPLICARIA CLARKI, new species. Plate 2, Figure 9

Shell small, 3½ somewhat swollen whorls with in addition a few-whorled shining nucleus; sutures well impressed; a single broad strong varix not far back from the outer labrum, the interspaces deeply furrowed; spiral riblets most conspicuous anteriorly upon body whorl and adjacent to sutures; surface colored with brownish-yellow forming lighter zones of small squarish or diamond shaped spots which are visible upon the two final whorls; aperture well expanded anteriorly, outer labrum lined

inside with weak lirae extending inward; three plaits upon inner wall, the adjacent surface granulate; slight indication of anterior notch. Alt. 16.5, max. diam. 6.5 mm.

Type locality: Venado Island, Panama (Clark). Holotype in the writer's collection.

Dall suspected that eventually a recent species of *Perplicaria* would turn up. He described *P. perplexa*, the genotype, as from the Pliocene of Florida. The recent shell is more compact, the penultimate whorl more swollen, the sculpture less pronounced than the fossil. The plaits upon the inner wall indicate connection with the Mitridae. Named for Walter D. Clark.

THE AMERICAN MALACOLOGICAL UNION THIRTEENTH ANNUAL MEETING

PACIFIC GROVE, CALIFORNIA, JUNE 18 TO 21, 1947 [1]

The American Malacological Union held its thirteenth annual meeting at Pacific Grove, California, at the invitation of Mr. Andrew Sorensen and the Directors of the Hopkins Marine Station. Asilomar Hotel and Conference Grounds with its spacious grounds, dormitories, cottages, and conference halls, provided a convenient meeting place in a beautiful setting. The local committee had been at work long before the start of the meetings and were on hand to greet each new arrival. As a pleasant surprise, each registrant was presented with a box containing named shells from the Pacific Coast, the gift of Messrs. Sorensen and Strohbeen and Mrs. Whelchel. The afternoon of the 17th was spent renewing old acquaintances and making new ones. In the evening, members of the Union visited an exhibit of marine life prepared by Mr. Strohbeen and a collection of abalone shells from California and other parts of the world prepared by Mr. Sorensen.

The first scientific meetings were held Wednesday morning, June 18. Dr. Henry van der Schalie, President, opened the meeting and called on Dr. L. R. Blinks, Director of the Hopkins

[1] By Aurèle La Rocque, acting for the Secretary, who was unable to attend.